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Response to 1st Office Action dated 06/15/2006
Reply to Office Action of 03/15/2006

REMARKS

In the above-identified Office Action, the Examiner objected to the SPECIFICATION and rejected Claims 3 – 5, 8 – 10, 13 – 15 and 18 – 20 under 35 U.S.C. §112, second paragraph, as being indefinite. Claims 1 - 4, 6 – 9, 11 – 14 and 16 - 19 were rejected under 35 U.S.C. §103(a) as being unpatentable over Duncanson in view of Jain et al. Claims 5, 10, 15 and 20 were indicated as allowable if rewritten to overcome the 35 U.S.C. §112 rejection as well as to include all the limitations of the base claim and any intervening claims.

The Examiner is thanked for the interview of June 13, 2006. In that interview, Claims 1 – 5 and the applied references were discussed. Applicants' attorney agreed, subject to IBM attorney's approval, to amend Claim 1 to include the limitations of Claim 5. However, upon consultation with the IBM attorney, a decision was made to keep Claim 1 as originally drafted.

In reviewing the SPECIFICATION, Applicants have encountered a few minor typographical/grammatical errors that have been corrected. Applicants have also amended the SPECIFICATION to change "host bus 401" to host bus 410 on page 9, line 29. Note that Applicants did not amend the SPECIFICATION to change the phrase "identification field is included" to identification field that is included on page 13, line 5, as suggested by the Examiner since Applicants believe that the phrase is proper as originally written.

Applicants further amended Claims 3, 8, 13 and 18 to overcome the 112 rejection made thereto. No other claims are amended or canceled.

By this amendment, Claims 1 – 20 remain pending in the Application. For the reasons stated more fully below, Applicants submit that the pending claims are allowable over the applied references. Hence, reconsideration, allowance and passage to issue are respectfully requested.

As stated in the SPECIFICATION, IP storage, known as iSCSI, is a new emerging technology. ISCSI allows requests for data, transmission and reception of data over the Internet. ISCSI lets a corporate network transfer and

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store SCSI commands and data at any location with access to the WAN or, If transmitted over the Internet, to locations with access to the Internet.

As is well known, SCSI is a commonly used industry standard protocol for storage devices. Using the SCSI protocol, drive control commands and data are sent to the drives. Responses and status messages, as well as data read from the devices, are passed through SCSI controllers.

In a system supporting iSCSI, a user or software application issues a command to store or retrieve data on a SCSI storage device. The request is processed by the operating system and is converted to one or more SCSI commands that are then passed to an application program or to a card. The command and data are encapsulated by representing them as a serial string of bytes proceeded by ISCSI headers. The encapsulated data is then passed to a TCP/IP layer that breaks it into packets suitable for transfer over the network. If required, the encapsulated data can also be encrypted for transfer over an insecure network.

The packets are sent over the network or the Internet. At the receiving storage controller, the packets are recombined and, if necessary, decrypted into the original encapsulated SCSI commands and data. The storage controller then uses the iSCSI headers to send the SCSI control commands and data to the appropriate drive, which performs the functions that were requested by the original computer or application. If a request for data has been sent, the data is retrieved from the drive, encapsulated and returned to the requesting computer. The entire process is transparent to the user.

Anyway, due to the volume of data that may be being transacted, a higher data transfer rate may be convenient. Thus, there is a need for a method to boost the data transfer rate.

The present invention provides such a method. According to the teachings of the invention, when data that is divided into a number of packets is to be transmitted from one system to another, the packets are checked to see whether they exceed a threshold number. If so, the packets are transmitted In

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parallel. Before transmission, however, an indicium is added to each packet to facilitate proper reconstruction of the data by the receiving system.

The invention is set forth in claims of varying scopes of which Claim 1 is illustrative.

> 1. A method of transmitting data from a source system to a target system over a network, said data being divided into a number of packets before transmission, the method comprising the steps of:
> **determining whether the number of packets exceeds a threshold number;** and
> **transmitting the packets in parallel, if the number of packets exceeds the threshold number, each packet having an indicium for properly reconstructing the data by the target system.**
> (Emphasis added.)

The Examiner rejected the independent claims under 35 U.S.C. §103(a) as being unpatentable over Duncanson in view of Jain et al. Applicants respectfully disagree.

Duncanson purports to teach a method for dynamic bandwidth allocation in a digital communication session. According to the teachings of Duncanson, data is transmitted and received in a single digital data stream between a first system and a second system. The first and the second systems communicate via a plurality of channels having a total transmission capacity rate. The first system has means for receiving the single digital data stream and for transmitting the single digital data stream by cyclically distributing the single digital data stream along the plurality of channels in the same order in each cycle. The second system has means for receiving the data from each of the channels and for reconstituting the data received from the plurality of channels into the transmitted single digital data stream. Generally, the rate of the data in the single digital data stream supplied to the first unit is measured. A utilization parameter is calculated. The number of channels is changed in response to the utilization parameter.

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However, Duncanson does not teach show or suggest the steps of *determining whether the number of packets exceeds a threshold number*; in order to transmit the *packets in parallel* and *transmitting the packets in parallel, if the number of packets exceeds the threshold number, each packet having an indicium for properly reconstructing the data by the target system* as claimed.

The Examiner asserted that Duncanson does teach the step of determining whether the number of packets exceeds a threshold number; in order to transmit the packets in parallel. Applicants have to disagree.

Because the amount of data to be transmitted across a channel at any particular time may not exactly equal the amount of bandwidth of the channel, Duncanson teaches that the system transmitting the data should add padding characters to occupy the time slots in the bandwidth not occupied by actual data values (col. 2, lines 58 – 63). However, for efficiency purposes, before the data is transmitted, the ratio of actual data to padding characters to be transmitted is determined. If the ratio is greater than a number, then the number of channels that has previously been used to transmit the data is reduced by one. If the ratio is less than a number, then one channel is added to the number of channels that is previously used to transmit the data. If the ratio is equal to a number, then the number of channels remains the same (see col. 4, line 62, to col. 5, line 6).

Note that in any of the cases above (i.e., whether the number of channels is changed or not), the data packets are transmitted in parallel. That is, the data packets are always transmitted in parallel. Therefore, there is no reason for Duncanson to disclose the step of *determining whether the number of packets exceeds a threshold number*; in order to transmit the *packets in parallel* as claimed.

Further, the Examiner stated that Duncanson fails to explicitly show how reconstruction of the data by the receiving system is accomplished. Therefore, the Examiner continued, combining the teachings of Duncanson with those of Jain et al. (who disclose the use of indicium with packets for proper

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reconstruction of data by a receiving system) shows the Invention. Applicants have to disagree.

Duncanson states that the data stream is broken up in data packets and the packets are cyclically placed in the data channels in the same order in each cycle (see the Summary of Duncanson as well as col. 2, line 65 to col. 3, line 13). The receiving system has means for receiving the data from each of the channels and for reconstituting the data received from the plurality of channels into the transmitted single digital data stream (see the Summary as well as col. 3, lines 21 to 25).

Thus, Duncanson impliedly disclose that the receiving system cyclically obtains the packets from each of the data channels in the same order in each cycle in order to reconstruct the data. Therefore, Duncanson does teach a method of reconstructing the data.

Since Duncanson does teach such a method, there is no reason to combine the teachings of Duncanson with those of Jain et al.

Nonetheless it should be noted that the method taught by Duncanson is different from the method of the invention. In other words, Duncanson does not teach, show or suggest the step of *transmitting the packets in parallel, if the number of packets exceeds the threshold number, each packet having an indicium for properly reconstructing the data by the target system* as claimed.

Further, note that even if Duncanson did not teach a method of reconstructing the data at the receiving end as claimed by the Examiner, the teachings of Duncanson could not be combined with those of Jain et al. in order to show the claimed invention.

Duncanson explicitly calls for breaking up the data into packets and to place the packets cyclically in a plurality of dedicated channels in the same order in each cycle without the addition of an indicium to the packets. Jain et al., on the other hand, specifically call for the addition of an indicium to the packets.

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Since the teachings of the two references are in direct contradiction to each other, they cannot be combined together.

Hence, Applicants submit that Claim 1, along with its dependent claims, is allowable over the references. The other independent claims (i.e., Claims 6, 11 and 16), which all include the emboldened/italicized limitations in the above-reproduced Claim 1, as well as their dependent claims are also allowable over the references. Consequently, Applicants once more respectfully request reconsideration, allowance and passage to issue of the claims in the application.

Respectfully Submitted

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